

# Responses to the Visual Perception of Food in Eating Disorders

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Preoccupation with food and dieting are typical manifestations of anorexia and bulimia nervosa. Food intake is mainly determined by the presumed nutritive value resulting in a rejection of food that is assumed to be highly nutritious.<sup>1,2</sup> It is also well established that the duration of consumption is changed in eating disorders.<sup>3,4</sup> Some of these alterations have also been described in fasting volunteers.<sup>5</sup> At present it is unknown whether these abnormalities merely represent biological correlates of malnutrition or specific psychopathological characteristics in eating disorders.

The few psychological studies available assessed the responses toward food mostly by questionnaires, and *in vivo* studies using behavior observation techniques are rare due to methodological obstacles. Moreover, differences in bulimics and anorexics had not always been scrutinized.

Visual presentation of 19 food items on slides was used in order to investigate the cognitive and emotional responses in 20 normal-weight bulimic and nine restrictive anorexic patients (DSM-III-R), aged 19 to 25 years, at the beginning and at the end of hospital treatment. The control group consisted of nine age-matched women at the maximum of weight loss ( $100.8 \pm 4.8\%$  IBW) during a four-week diet and at normal weight ( $106.6 \pm 5.3\%$  IBW).

It was examined whether the degree of rejection, the ratings of nutritive value, and hypothetical duration of consumption of food, categorized according to its nutritive value and ease of consumption, is different in these groups and whether the severity of the eating disorder, that is, the state of malnutrition, is related to these variables. Additionally, the influence of the perception of food items on ratings of appetite directly before and after the experiment was investigated in the groups.

## RESULTS

The main findings are presented in TABLES 1 and 2 and FIGURE 1.

The results support clinical and empirical evidence, suggesting a more pronounced rejection of nutritious food and longer hypothetical duration of consumption in anorexics when compared to bulimics and controls. Nutritive value of different food items was more realistically estimated by bulimics than by anorexics, and a period of dieting induced the physiological but not the cognitive and emotional abnormalities of malnutrition. Inconsistency of both findings with other reports<sup>6-7</sup> can be explained by methodological differences. Whether the visual presentation of food is a more reli-

**TABLE 1.** Ratings of Appetite and Hunger (100-mm Visual Analogue Scale) before (1) and after (2) the Visual Presentation of 19 Food Items in Anorexics and Bulimics at the Onset of Treatment and in Controls at the Maximum of Weight Loss

Subject Group	Appetite		<i>p</i> 1 - 2	Difference	Hunger		<i>p</i> 1 - 2	Difference
	1	2			1	2		
<b>Anorexics (<i>n</i> = 9)</b>								
$\bar{x}$	15.3 <sup>a</sup>	25.5 <sup>a</sup>	< 0.5	10.2	8.0	21.9	< 0.05	13.9 <sup>c</sup>
Sd	15.0	21.2		8.5	7.5	23.0		16.0
<b>Bulimics (<i>n</i> = 20)</b>								
$\bar{x}$	18.0 <sup>b</sup>	27.6 <sup>b</sup>	ns	9.6	17.6	16.2	ns	- 1.3 <sup>c,d</sup>
Sd	21.9	28.1		21.8	22.9	24.7		11.5
<b>Controls (<i>n</i> = 9)</b>								
$\bar{x}$	45.8 <sup>a,b</sup>	60.2 <sup>a,b</sup>	< 0.01	14.4	25.2	37.1	< 0.05	11.9 <sup>d</sup>
Sd	27.8	33.4		11.3	29.5	36.4		12.2

<sup>a</sup> Anorexics versus controls, *p* < 0.01; *t*-test, two-tailed.

<sup>b</sup> Bulimics versus controls, *p* < 0.05; *t*-test, two-tailed.

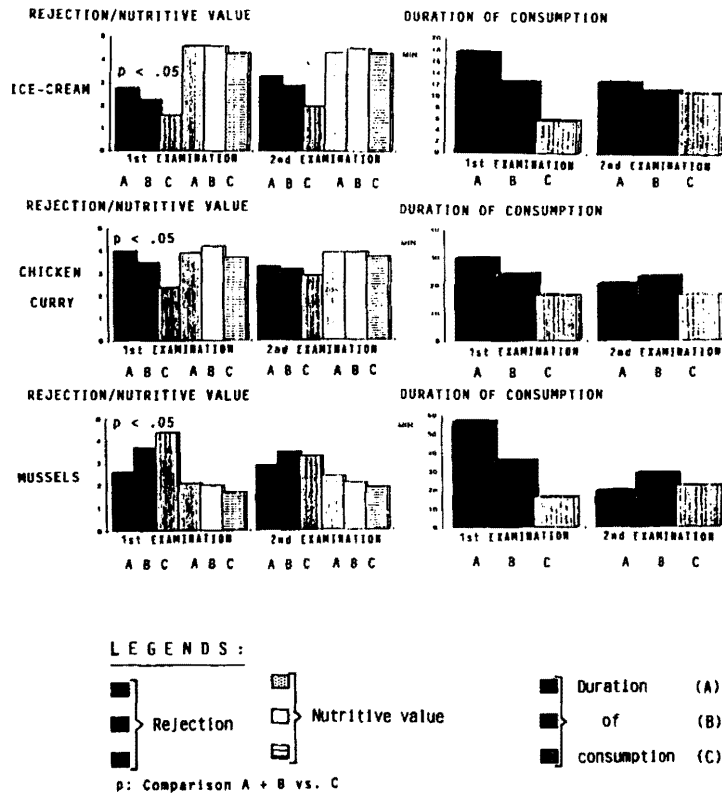
<sup>c</sup> Anorexics versus bulimics, *p* < 0.05; *t*-test, two-tailed.

<sup>d</sup> Bulimics versus controls, *p* < 0.01; *t*-test, two-tailed.

**TABLE 2.** Ratings of Appetite and Hunger (100-mm Visual Analogue Scale) before (1) and after (2) the Visual Presentation of 19 Food Items in Anorexics and Bulimics at the End of Treatment and in Controls at Normal Weight

Subject Group	Appetite		<i>p</i> 1 - 2	Difference	Hunger		<i>p</i> 1 - 2	Difference
	1	2			1	2		
<b>Anorexics (<i>n</i> = 7)</b>								
$\bar{x}$	37.3	32.1	ns	-5.1	21.0	19.0	ns	-2.6
Sd	33.8	27.1		17.9	31.2	25.8		16.9
<b>Bulimics (<i>n</i> = 17)</b>								
$\bar{x}$	27.3 <sup>a</sup>	34.5 <sup>a</sup>	ns	8.4	26.5	33.1	ns	7.8
Sd	30.2	35.2		21.3	32.9	35.2		18.1
<b>Controls (<i>n</i> = 9)</b>								
$\bar{x}$	13.8 <sup>a</sup>	17.2 <sup>a</sup>	ns	3.4	12.6	23.2	ns	10.7
Sd	12.4	20.0		12.3	9.7	24.6		15.5

<sup>a</sup> Bulimics versus controls, *p* < 0.1; *t*-test, two-tailed.



**FIGURE 1.** Rejection, estimated nutritive value, and duration of consumption of three food items at the first and second examination in (A) anorexics, (B) bulimics, and (C) controls (MANOVA).

able method than other methods for the assessment of cognitive and emotional responses of patients with eating disorders has to be further investigated.

**REFERENCES**

- ROSEN, J. C., H. LEITENBERG, C. FISHER & C. KHAZAM. 1986. *Int. J. Eating Disord.* 5: 255-267.
- MORGAN, H. G. & G. F. M. RUSSELL. 1975. *Psychol. Med.* 5: 355-371.
- ABRAHAM, S. F. & P. J. V. BEUMONT. 1982. *Psychol. Med.* 12: 625-635.
- MITCHELL, J. E. & D. C. LADNE. 1985. *Int. J. Eating Disord.* 4: 177-183.
- KEYS, A., J. BROZEK, A. HENSCHEL, O. MICKELSEN & H. L. TAYLOR. 1950. *The Biology of Human Starvation.* University of Minnesota Press. Minneapolis, MN.
- BEUMONT, P. J. V., T. L. CHAMBERS, L. ROUSE & S. F. ABRAHAM. 1981. *J. Hum. Nutr.* 35: 265-273.
- LASSLE, R., U. SCHWEIGER, U. DAUTE-HEROLD, M. SCHWEIGER, M. M. FICHTER & K. M. PIRKE. 1988. *Int. J. Eating Disord.* 7: 63-73.